Using EnviroAtlas to Assess Land Cover

Background: Rain gardens are shallow, planted depressions designed to capture and absorb rainwater runoff from impervious surfaces such as rooftops, driveways, parking lots, and roads. Their effectiveness depends largely on their placement in areas where water naturally flows and can infiltrate the soil. One of the most important factors in selecting a location is understanding land cover—the distinction between pervious surfaces, which allow water to soak into the ground, and impervious surfaces, which generate runoff. Identifying areas with high runoff potential and directing water toward pervious zones can significantly improve stormwater management.

The EPA's **EnviroAtlas** is a valuable tool for analyzing land cover and assessing potential rain garden sites. It provides interactive maps with detailed data on impervious surface coverage, vegetation, and other environmental factors that influence water movement and infiltration. By using EnviroAtlas, users can evaluate urban runoff patterns, identify drainage hotspots, and make data-driven decisions about where a rain garden would be most effective. Integrating land cover analysis into rain garden planning ensures that these features are strategically placed to maximize water capture, enhance local ecosystems, and reduce stormwater pollution.

ENVIROATLAS GUIDE

1. Visit **EnviroAtlas** and choose "Explore" to follow this guide. Type in the area of interest in the top search bar.

2. On the top of the left side bar, select the "EnviroAtlas Data" button. 

3. Consider your location to choose the right landcover layer option (see Figure 1):
   a. If you are in a major city, search Landcover type (community), which is under Land Cover: Type. Add the layer to the map by checking the box.
   b. For all other areas, search national land cover database. Add the layer to the map by checking the box.

4. Enter the location where land cover is to be analyzed in the search bar or use the mouse to locate and zoom in on the map.

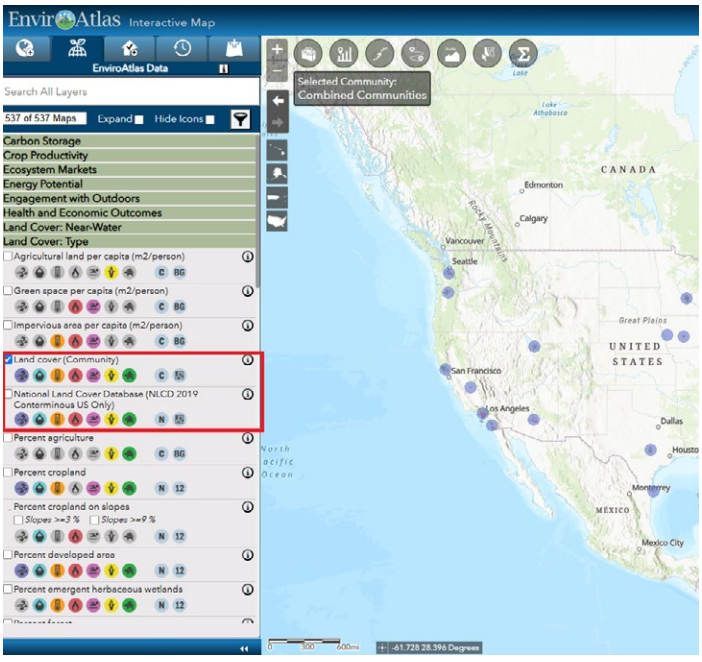

Figure 1. A screenshot of the land cover layer options in EnviroAtlas.

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5. Choose the "Summarize My Area" tool  (see Figure 2).

   a. Select "Land Cover" from the "indicator" dropdown menu.
   b. Select "Draw an Area" under "summary unit"; be sure "Buffer distance" is 0 km and "Exclude Inner Feature" is unchecked.
   c. You will likely need to move the "Summarize My Area" box to see the region you want to select.

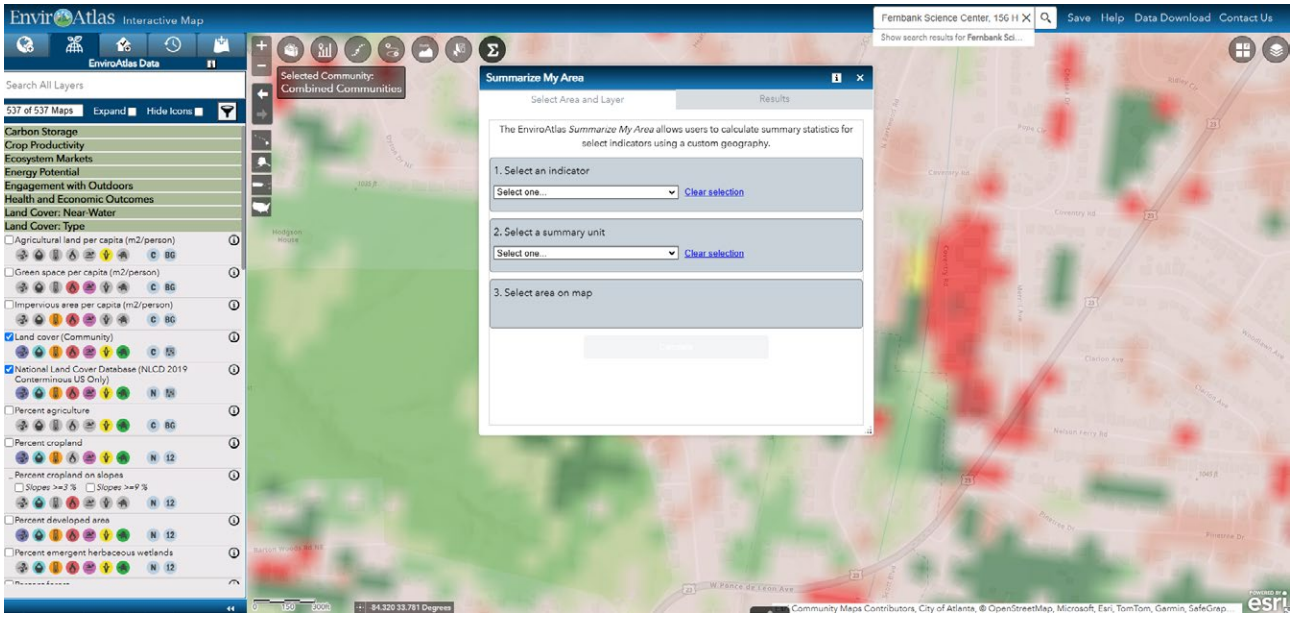

Figure 2. A screenshot of the "Summarize My Area" menus in EnviroAtlas.

6. Click near the edge of the property and draw in a circular motion to select the area you want to analyze (see Figure 3).

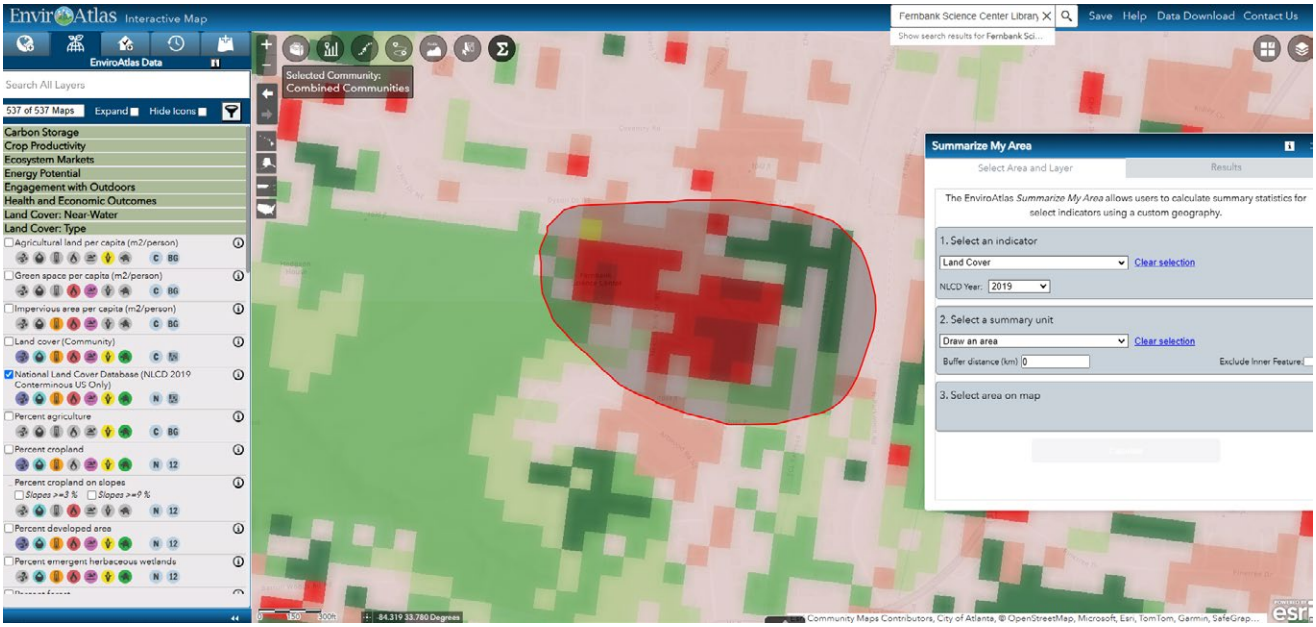

Figure 3. A screenshot of the area selection tool being used in EnviroAtlas.

7. Click "Calculate," and you can see the results summarized (see Figure 4).

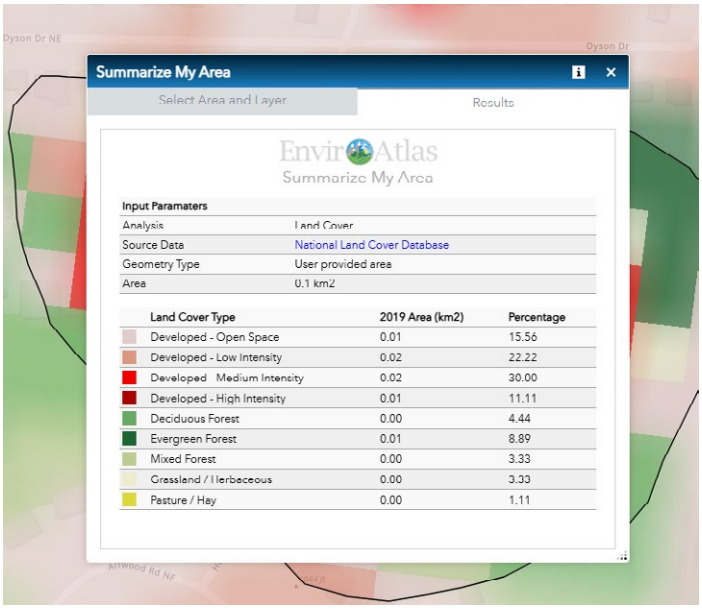

Figure 4. A screenshot of the "Summarize My Area" output in EnviroAtlas.

8. Add the percentages for "Developed – Low Intensity, Medium Intensity, and High Intensity" to get the total area covered by infrastructure.

9. "Developed – Open Space" is a mix of natural and human-made areas and is typically less than 10% infrastructure. Take 10% of this area and add it to the total in step 8.

10. If you want to compare how landcover has changed, refresh and repeat these steps, except now choose "Land Cover Change" to get data on how the area has been altered between two selected years (see Figure 5).

Land Cover Type	2001 Area (km2)	2001 Percentage	2019 Area (km2)	2019 Percentage
Open Water	0.00	0.9	0.00	0.0
Developed - Open Space	0.02	23.2	0.02	22.3
Developed - Low Intensity	0.02	22.3	0.02	23.2
Developed - Medium Intensity	0.02	17.0	0.02	24.1
Developed - High Intensity	0.00	1.8	0.01	8.9
Deciduous Forest	0.01	8.0	0.01	5.4
Evergreen Forest	0.02	17.9	0.01	8.0
Mixed Forest	0.01	5.4	0.00	4.5
Grassland / Herbaceous	0.00	1.8	0.00	2.7
Pasture / Hay	0.00	1.8	0.00	0.9

Figure 5. A screenshot of land cover data in EnviroAtlas.

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